vertex 340 and proceed to the intersection point 342 at which time the span walker fill module would take over to fill a portion of the primitive 308 which is within the screen region 300. Finally, it is shown how the method of the present invention also works for primitive 310 wherein the start point 350 is within the screen region 300. The equations then cause the span walker and fill module 206 to fill the portion of the primitive 310 which is within the screen region 300 but not the portion of the primitive 310 which is outside of the screen region 300.

In the claims:

Please amend the claims as follows:

Please substitute the following claims for claims having the same number:

1. (ONCE AMENDED) In a computer system, a method for rasterizing primitives, comprising the steps of:

determining if a primitive is totally outside a predetermined screen region or at least partially within the predetermined screen region;

discarding the primitive if the primitive is totally outside the screen region;

finding at least a portion of the primitive that is inside the screen region if the primitive is not totally outside the screen region; and

filling only pixels in the portion of the primitive that is inside the screen region.

5. (ONCE AMENDED) The method according to claim 4, wherein in the step of finding at least a portion of the primitive that is inside the primitive, given a start point X=XSTART and Y=YSTART for the primitive, the method further comprises the steps of.

(1) incrementing Y if a first value, (((YDIR AND (Y>YBOTTOM)) OR ((YDIR AND (Y<YTOP))), is logically true;

(2) incrementing X if a second value, (((XDIR AND (X>XRIGHT)) OR ((XDIR AND (X<XLEFT))), is logically true; and

(3) repeating steps (1) and (2) until the first and second values are not true, which identifies a beginning of a portion of the primitive that is inside of the screen region.

6. (ONCE AMENDED) The method according to claim 4, wherein in the step of filling the filling is finished when one of the following is true:

(XDIR AND (X < XLEFT)),

(XDIR AND (X > XRIGHT)),

(YDIR AND (Y < YTOP)),

(YDIR AND (Y > YBOTTOM)).

7. (ONCE AMENDED) The method according to claim 1, wherein the method further comprises the steps of:

defining a start point on an edge of the primitive;

determining if the start point is outside the screen region;

edge walking the edge of the primitive from the start point to a boundary of the screen region;

span walking a portion of the primitive inside the screen region and filling each pixel in the portion of the primitive that is inside the screen region.

16. (ONCE AMENDED) The method according to claim 13, wherein the primitive is a triangle and the start point is a vertex of the triangle.

17. (ONCE AMENDED) The method according to claim 10, wherein the primitive is a triangle.

18. (ONCE AMENDED) A graphic primitive clipping system that clips triangular primitives relative to a predetermined screen region, each primitive defined by location values XSTART, YSTART, XEND, YEND, XSTART and XEND defining an X direction extent and

location of the primitive in the coordinate system, and YSTART and YEND defining a Y direction extent and location of the primitive in the coordinate system, a screen region defined by limit values XLEFT, XRIGHT, YTOP, YBOTTOM, XLEFT and XRIGHT defining an X direction extent and location of the screen region in the coordinate system, and YSTART and YEND defining a Y direction extent and location of the screen region in the coordinate system, the primitive further defined by first and second x direction values of 0 and 1, respectively, for an x direction XDIR in the coordinate system as, respectively, left to right and right to left relative to the screen region, and first and second y direction values as 0 and 1, respectively, for a y direction YDIR in the coordinate system as, respectively, top to bottom and bottom to top, comprising:

a primitive locator module having an input for receiving primitives and having an output for supplying only primitives that are at least partially within the screen region, primitives being totally outside the screen area if at least one of the following is logically true given a start point X=XSTART and Y=YSTART for a primitive

XDIR AND ((X<XLEFT) OR (XEND>XRIGHT))

XDIR AND ((X>XRIGHT) OR (XEND>XLEFT))

YDIR AND ((Y<YTOP) OR (YEND>YBOTTOM))

YDIR AND ((Y>YBOTTOM) OR (YEND<YTOP));

an edge walker module having an input operatively connected to the output of the primitive locator module and having an output for supplying data identifying the portion of the primitive inside of the primitive, the edge walker module structured such that at least a portion of the primitive that is inside the primitive, given a start point X=XSTART and Y=YSTART for the primitive, being found by:

(1) incrementing Y if a first value, (((YDIR AND (Y>YBOTTOM)) OR ((YDIR AND (Y<YTOP))), is logically true;

(2) incrementing X if a second value, (((XDIR AND (X>XRIGHT)) OR ((XDIR AND (X<XLEFT))), is logically true; and

(3) repeating steps (1) and (2) until the first and second values are not true, which identifies a beginning of a portion of the primitive that is inside of the screen region;

a span walker having an input operatively connected to the output of the edge walker and an output for supplying filled pixels for pixels in the portion of the primitive inside of the screen region, the span walker having filled all pixels in the portion of the primitive inside of the screen region when one of the following is true:

(XDIR AND (X < XLEFT)),

(XDIR AND (X > XRIGHT)),

(YDIR AND (Y < YTOP)),

(YDIR AND (Y > YBOTTOM)).

19. (ONCE AMENDED) The system according to claim 17, wherein the start point is a vertex of the primitive.